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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,232	12/13/2001	Michael Charles LaCroix	104427-100	1610

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PATENT DEPARTMENT
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WASHINGTON, DC 20005-3502

EXAMINER

MILLER, PATRICK L

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/017,232	LACROIX, MICHAEL CHARLES	
	Examiner	Art Unit	
	Patrick Miller	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to because of the following informalities: Claim 12 cites, “an electric motor.” It is unclear if this motor is the same as that claimed in claim 1. Please clarify. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4-7, 9, and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Archer et al (5,592,058).
 - With respect to claims 4 and 15, Archer et al disclose a circuit arrangement in a variable speed electric motor controller comprising: a controller logic circuit that controls a state machine (fig. 4, #102 controls #112), the state machine sets the voltage supplied to the motor (fig. 4, #112 output to drivers), a closed loop feedback signal that generates a signal indicative of the voltage across the motor (fig. 4, #126A), and the feedback signal is input to the state machine (fig. 4, #127), and converting the duty cycle of an input signal from the closed loop feedback (fig. 4, #127 converted).
 - With respect to claims 5 and 6, the state machine controls the motor when it is in operation (running state) and the state machine has an overcurrent state (col. 5, lines 7-21) and a timeout state (col. 11, lines 35-45).

- With respect to claim 7, the controller comprises a microprocessor and a memory to control the state machine (fig. 1, #102 and #106 control #112).
- With respect to claim 9, the circuit is directly connected to the motor (fig. 1, #124 and #126 to #114).
- With respect to claims 16 and 17, Archer et al disclose the control system used in an air conditioning system (temperature control system), which could be used in an automobile.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Archer et al (5,592,058).

- Archer et al disclose an electric motor linear speed controller, comprising: a digital to analog converter (D/A) means for converting a digital signal to an analog voltage for setting voltage across a motor (fig. 4, #435 used to set outputs of the drivers), a digital state machine for converting a duty cycle of an input signal for output to the D/A (fig. 4, #112), and a closed-loop feedback means for monitoring and setting the voltage across the motor (fig. 4, #126A).
- Archer et al does not explicitly disclose an 8-bit digital to analog converter; however, a person of ordinary skill in the art would know 8-bit an 8-bit D/A is common and would provide the advantage of improved resolution when compared to a 4-bit D/A.

4. Claims 2, 3, 10, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Archer et al as applied to claim 1 above, and further in view of Makaran (5,744,921).
 - Archer et al do not disclose an over-current sense circuit and an over/under voltage sense circuit.
 - Makaran discloses a brushless dc motor with an over-current sense circuit and an over/under voltage sense circuit. The motivation to provide both circuits is to determine when a fault has occurred. This provides the advantage of allowing the controller to invoke a fault handling sequence (col. 5, lines 14-35).
 - Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Archer et al with an over-current sense circuit and an over/under voltage sense circuit, thereby providing the advantage of allowing the controller to invoke a fault handling sequence, as taught by Makaran.
 - With respect to claims 10 and 11, Archer et al disclose the motor used in an air-conditioning system. This could be used for an automobile's air conditioning system.
5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Archer et al as applied to claim 4 above.
 - Archer et al does not explicitly disclose an 8-bit digital to analog converter; however, a person of ordinary skill in the art would know 8-bit an 8-bit D/A is common and would provide the advantage of improved resolution when compared to a 4-bit D/A.
6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Archer et al and Makaran as applied to claim 10 above, and further in view of Hipkins et al (4,208,621).
 - Archer et al and Markaran do not disclose the component being an electric light.

- Hipkins et al disclose a brushless motor control system that controls a light. The motivation to control a light is to provide the advantage of a fault indicator (cols. 6/7, lines 65-68/1-13).
 - Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention that the device of Archer et al and Markaran could control a light, thereby providing the advantage of implementing a fault indicator, as taught by Hipkins et al.
7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Archer et al (5,592,058) in view of Makaran (5,744,921).
- Archer et al disclose an electric motor linear speed controller, comprising: a digital to analog converter (D/A) means for converting a digital signal to an analog voltage for setting voltage across a motor (fig. 4, #435 used to set outputs of the drivers), a digital state machine for converting a duty cycle of an input signal for output to the D/A (fig. 4, #112), and a closed-loop feedback means for monitoring and setting the voltage across the motor (fig. 4, #126A).
 - Archer et al does not explicitly disclose an 8-bit digital to analog converter; however, a person of ordinary skill in the art would know 8-bit an 8-bit D/A is common and would provide the advantage of improved resolution when compared to a 4-bit D/A.
 - Additionally, Archer et al do not disclose an over-current sense circuit and an over/under voltage sense circuit.
 - Makaran discloses a brushless dc motor with an over-current sense circuit and an over/under voltage sense circuit. The motivation to provide both circuits is to determine

when a fault has occurred. This provides the advantage of allowing the controller to invoke a fault handling sequence (col. 5, lines 14-35).

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Archer et al with an over-current sense circuit and an over/under voltage sense circuit, thereby providing the advantage of allowing the controller to invoke a fault handling sequence, as taught by Makaran.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 703-308-4931. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on 703-308-3370. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Patrick Miller
Examiner
Art Unit 2837

pm
November 2, 2003


ROBERT NAPPI
SUPERVISORY PATENT EXAMINER